



Virginia Department of Health

Toxic Substances Information

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FREQUENTLY ASKED QUESTIONS (FAQs) ABOUT ASBESTOS

Asbestos has been monitored in the Madison Building over the past several years to assess the health risk to building occupants, visitor and custodial workers. The following are the most frequently asked questions and their answers regarding the health risks of asbestos exposure in general, especially asbestos exposure in Madison Building.

Q. What is asbestos?

A. Asbestos is a naturally occurring family of fibrous minerals found in certain types of rock formations. These minerals are made-up of long, thin fibers that vary in length and may be straight or curled. The typical size of asbestos fibers is 0.1 to 10 μm in length, a size that is not generally visible to the human eye. It can be positively identified with a special type of microscope. There are six types of asbestos. chrysotile, amosite, crocidolite, anthophyllite, actinolite, and tremolite. Of the general type, the minerals chrysotile (white) amosite (brown), and crocidolite (blue) have been most commonly used in buildings. Approximately 95% of all asbestos used in commercial products is chrysotile.

Q. Where was asbestos used?

A. The asbestos fibers are heat resistant and possess great tensile strength. They are incombustible and cannot be degraded or destroyed easily. Because of these properties, in the past, asbestos has been used in more than 3,000 products, including ceiling and floor tiles, thermal and electrical insulation, cement pipe and sheet, filters, coatings, brake linings, clutch facings, gaskets, plastics, fireproofing textiles, insulating papers, and protective clothing. The amount of asbestos contained in these products varies significantly from 1 to 100%, depending on the particular use. Most products made today do not contain asbestos.

Q. What happens to asbestos when it enters the environment?

A. When disturbed, asbestos fibers may become suspended in the air for many hours, thus increasing the extent of asbestos exposure for individuals within the area. The potential of an asbestos-containing product to release of fibers is dependent upon its degree of friability. Friable means that the material can be crumbled, pulverized, or reduced to powder with hand pressure and, therefore, is likely to emit fibers. The fibrous or fluffy spray-applied asbestos materials found in many buildings for fire proofing, insulating, sound proofing, or decorative purposes are generally considered friable. All forms of asbestos have a tendency to break into a dust of tiny fibers that can float in the air, stick to clothes, and may be easily inhaled or swallowed.

Q. How might I be exposed to asbestos?

A. Human exposure to asbestos is primarily through inhalation and ingestion of fibers. Because asbestos is so widely used, virtually everybody is potentially exposed to some extent by breathing low levels of asbestos present in the air. Breathing higher levels in air while working in industries that make or use asbestos prod-

ucts or near a building that contains asbestos products and is being torn down or renovated or near an asbestos-related industry or near a waste site where asbestos is not properly covered up or stored to protect it from wind erosion. Drinking water containing asbestos from natural sources or from asbestos-containing cement pipes in drinking water distribution systems.

Low levels of asbestos are not likely to be harmful to your health can be detected in almost any air sample. For example, in rural areas, an average of around 0.03 to 3 fibers are usually present in a cubic meter (f/m^3) of outdoor air. (A cubic meter is about the amount of air one breathes in 1 hour). Higher levels are found in cities, where there may be 3-300 f/m^3 . Close to an asbestos mine or factory, levels could reach 2,000 f/m^3 or higher. Levels could also be above average near a building that is being torn down or renovated, or near a hazardous waste site where asbestos is not properly covered up or stored to protect it from wind erosion.

In Indoor air, the concentration depends on whether asbestos-containing materials are in good condition or deteriorated and easily crumbled. Concentrations measured in homes, schools, and other buildings that contain asbestos range from 30 to 6,000 f/m^3 . People who work with asbestos (e.g. miners, insulation workers, automobile brake mechanics) are likely to be exposed to much higher levels of asbestos particles in air.

One can also be exposed to asbestos by drinking fibers present in water. Even though asbestos does not dissolve in water, fibers can enter water by being eroded from natural deposits or piles of waste asbestos, or from cement pipe used to carry drinking water. Most drinking water supplies in the United States have concentrations less than 1 million fibers per liter (MFL). However, in some locations, there may be 10 to 100 MFL or even higher.

Q. How can asbestos enter and leave my body?

A. If one breathes asbestos fibers into the lungs, some of the fibers will be deposited in the air passage and on the cells that make up the lungs. Most fibers are removed from the lungs by being carried away in a layer of mucous to the throat, where they are swallowed into the stomach. This usually takes place within a few hours, but fibers that are deposited in the deepest parts of the lung are removed more slowly, and some can remain in place for many years and may never be removed.

If one swallows asbestos fibers (either those present in water or those that are moved to the throat from lungs), nearly all fibers pass along your intestines within a few days and are excreted in the feces. A small number of fibers may penetrate into cells that line stomach or intestines and a few penetrate all the way through and get into blood. Some of these become trapped in other tissues or some are removed in urine.

Q. What are the health risks of asbestos exposure?

A. Although the inhalation of asbestos fibers can cause serious health risks, the risk of asbestos-related disease depends upon exposure to airborne fibers. How many fibers a person must breathe to develop disease is uncertain. However, at very low exposure levels, the risk may be negligible or zero. Inhalation of asbestos fibers to very high levels in occupational workers has been shown to cause asbestosis (a fibrous scarring of the lungs), lung cancer (bronchogenic carcinoma), and mesothelioma (a cancer of the lining of the chest or abdominal cavity). These diseases do not develop immediately after inhalation of asbestos fibers; it may be 10 to 20 years or more before symptoms appear.

Q. What are the levels of Asbestos in the Madison Building?

A. Based upon the 1991 air monitoring data, the average airborne asbestos fiber levels in Madison Building seem to be non-detectable to very low. Accordingly, the health risk to most building occupants, visitors, and

workers also appear to be very low or zero.

Q. What are the interactive effects of asbestos and cigarette smoke?

A. Cigarette smoking and asbestos have a strong synergistic interaction in the development of lung cancer. Increased cases of asbestos-related lung cancer occurred among people who smoked (for who has the risk of lung cancer is already high) and were exposed to asbestos. In fact, smoking not only adds to the risk, it multiplies it. Because of some interaction in the body, people who are exposed to asbestos and also smoke have an increased risk of lung cancer fifty to ninety times greater than people who do not smoke and are not exposed to asbestos. In contrast to the interactive effect of smoking on lung cancer, smoking does not appear to increase the risk of mesothelioma.

Q. Is there a medical test to determine whether I have been exposed to asbestos?

A. The most common test used to determine if you have been exposed to asbestos is chest X-ray. The chest X-rays cannot detect asbestos fibers, but can detect early signs of lung disease caused by asbestos. Tests are available to measure asbestos fibers in urine, feces, mucous, or material rinsed out of the lung. Low levels of asbestos fibers are found in the body fluids in nearly all people. So higher-than-average levels can only show that one has been exposed to asbestos, not whether one will experience any health effects.

Q. Are there any standards or guidelines to protect people from exposures to asbestos?

A. The U.S. Occupational Safety and Health Administration (OSHA) has established an enforceable limit of 100,000 f/m³ on the average 8-hour daily concentration of asbestos allowed in air in the workplace. The Environmental Protection Agency (EPA) banned all new uses of asbestos on July 12, 1989. Uses established before this date are still allowed. The EPA has established regulations that require school systems to inspect for damaged asbestos and to eliminate or reduce exposure by removing the asbestos or covering it up so it cannot get into the air. The EPA has set a limit of 7 million fibers per liter (MFL) as the concentration of long asbestos fibers that may be present in drinking water.

Q. Whom should I contact to get more information about asbestos?

A. If you further information regarding the health risks of asbestos, contact the Virginia Department of Health, Toxic Substances Information, PO Box 2448, 1500 E. Main Street, Room 124, Richmond, Virginia 23218, or call (804) 786-1763.

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December 21, 1998